

In Vitro and In Vivo Anti-leishmanial Activity of Methanolic Extracts of *Artemisia absinthium* on *Leishmania Major*

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Background & Objectives: Leishmaniasis is an important parasitic disease, caused by species of flagellate protozoan called leishmania, and transmitted by the bite of sandflies. Mostly, the clinical forms of leishmaniasis are cutaneous lesion (CL) that is self healing and progressive visceral (VL) that can be lethal. As there is no vaccine, drug treatment (Pentavalent antimony, Amphotericin B, Miltefosine ...) is the only way to control leishmaniasis. But many of the drugs are toxic and the development of resistant parasites to most drugs has been reported.

Methods: Plants can provide valuable sources of new medicinal compounds. In this study the Anti-leishmanial activity of methanolic extract of *Artemisia absinthium* that used in Iranian traditional medicine was evaluated against *Leishmania major* promastigotes, amastigotes and finally on leishmanial ulcers in Balb/c mice. Plant extraction was done by percolation methods. Dry ground plant materials were macerated with 80% methanol and crude extract was obtained after solvent evaporation. Leishmanicidal activity of plant extract on promastigotes was done by using MTT colorimetrically assay. In second stage, macrophage cells were infected by *leishmania major* and the macrophage culture was treated with the plant extract for 3 days. In last stage, Balb/c mice were infected by *Leishmania major* and after 3 weeks leishmanial ulcers were obvious. The ulcers were treated with an ointment was prepared plant extract. The sizes of lesions were measured every day.

Results: The results indicated that the extraction can inhibit the growth of promastigotes, and Inhibitory Concentration (IC₅₀) for *Artemisia absinthium*, it is less than 200 µg/ml. Also ointment prepared from this plant extract, showed a significant decrease in progression of lesions size, versus control group (P-value≤0.05).

Conclusion: This study showed a potent antileishmanial effect in this plant, and as a result it can be a development to find out new antileishmanial compounds.

Keywords: *Leishmania major*; Promastigote; Amastigote; Balb/c Mice; Plant Extract